



## Complete Summary

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### GUIDELINE TITLE

Contact lens care.

### BIBLIOGRAPHIC SOURCE(S)

Singapore Ministry of Health. Contact lens care. Singapore: Singapore Ministry of Health; 2001 Jan. 33 p. [60 references]

## COMPLETE SUMMARY CONTENT

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INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT

CATEGORIES

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## SCOPE

### DISEASE/CONDITION(S)

- Myopia
- Complications that may result from contact lens wear, including allergic conjunctivitis (e.g., giant papillary conjunctivitis), dry eye syndrome, corneal infiltrates, corneal vascularisation, corneal oedema, corneal abrasion, and infective keratitis

### GUIDELINE CATEGORY

Management  
Prevention  
Treatment

### CLINICAL SPECIALTY

Ophthalmology  
Optometry

### INTENDED USERS

Optometrists  
Physicians

#### GUIDELINE OBJECTIVE(S)

- To establish safe contact lens wear and care for contact lens wearers to minimize contact lens complications
- To recommend to eye-care professionals appropriate procedures when carrying out contact lens fitting and disinfection of trial lens

#### TARGET POPULATION

Contact lens wearers

#### INTERVENTIONS AND PRACTICES CONSIDERED

##### Patient Selection and Care

1. Selection of appropriate candidates for contact lens wear
2. Setting up a daily wear schedule in extended wear users
3. Eliciting patient compliance in contact lens care, including replacement of lens as appropriate
4. Advising patients on removing lens when signs of complications appear
5. Use of topical antibiotics when microbial keratoconjunctivitis is suspected and refraining from use of steroid eyedrops

##### Reducing Contact Lens Contamination

1. Maintaining a clean contact lens storage case
2. Use of prophylactic topical antibiotics in extended-wear users

##### Patient Education

1. Patient education on contact lens care hygiene in the form of verbal explanations, written instructions, hands-on demonstrations, and periodic reinforcements

##### Disinfection of Trial Lenses

1. Hygienic handling of trial lenses during lens fitting, including, hand washing, safe handling of contaminated sharps, disinfection of equipment and instruments, and use of heat or hydrogen peroxide lens disinfection

#### MAJOR OUTCOMES CONSIDERED

- Visual acuity with contact lenses
- Complications from contact lens wear

## METHODOLOGY

### METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

### DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

### NUMBER OF SOURCE DOCUMENTS

Not stated

### METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

### RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

Level Ia: Evidence obtained from meta-analysis of randomised controlled trials.

Level Ib: Evidence obtained from at least one randomised controlled trial.

Level IIa: Evidence obtained from at least one well-designed controlled study without randomisation.

Level IIb: Evidence obtained from at least one other type of well-designed quasi-experimental study.

Level III: Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies.

Level IV: Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities.

### METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

### DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

### METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

#### DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

#### RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

##### Grades of Recommendation

Grade A (evidence levels Ia, Ib): Requires at least one randomized controlled trial as part of the body of literature of overall good quality and consistency addressing the specific recommendation.

Grade B (evidence levels IIa, IIb, III): Requires availability of well conducted clinical studies but no randomised clinical trials on the topic of recommendation.

Grade C (evidence level IV): Requires evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities. Indicates absence of directly applicable clinical studies of good quality.

Good Practice Points: Recommended best practice based on the clinical experience of the guideline development group.

#### COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

#### METHOD OF GUIDELINE VALIDATION

Not stated

#### DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

### RECOMMENDATIONS

#### MAJOR RECOMMENDATIONS

Each recommendation is rated based on the level of the evidence and the grades of recommendation. Definitions of the grades of the recommendations (A, B, C, Good Practice Points) and level of the evidence (Level I - Level IV) are presented at the end of the Major Recommendations field.

Patient Selection and Care

B - Patients selected for cosmetic contact lens wear should be free of ocular surface disease and capable of good personal hygiene and compliance (Bowden et al, 1989; Donzis et al, 1987). (Grade B, Level II b)

B - A daily wear schedule is recommended for most patients in view of the increased risk of microbial keratitis in extended contact lens wear (Poggio et al, 1989; Dart et al, 1991; Hamano et al, 1985; MacRae et al, 1991; Glynn et al, 1991; Matthews et al, 1992; Stapleton, Dart, & Minassian, 1993; Schein et al, 1994; Buehler et al, 1992; Schein et al, 1989; Weissman, Remba, & Fugedy, 1987). (Grade B, Level II a)

C - Contact lens practitioners should stress the importance of lens care compliance and look out for potential contact lens complications and lens spoilage during follow-up visits. (Grade C, Level IV)

C - Contact lens wearers should be advised to remove the contact lenses immediately whenever redness, tearing, visual loss or pain occurs and to consult his/ her eye- care professional at once. (Grade C, Level IV)

C - When a contact lens wearer presents with a red eye, it is important to exclude a microbial cause of keratoconjunctivitis and to refrain from prescribing steroid eyedrops. (Grade C, Level IV)

GPP - If microbial keratoconjunctivitis is suspected, topical antibiotics with adequate coverage for Gram-negative organisms should be instituted (Tan, Lee, & Lim, 1995). (Good Practice Points)

#### Reducing Contact Lens Contamination

B - Keeping the contact lens storage case clean might have a protective benefit in avoiding ulcerative keratitis (Schein et al, 1989). (Grade B, Level II a)

C - Prophylactic topical antibiotics should be considered when using therapeutic lens on an extended wear basis. (Grade C, Level IV)

#### Providing Public Education of Contact Lens Care

B - Contact lens wearers must be well educated on contact lens care hygiene, as this will reduce the risk of complications (Donzis et al, 1987). (Grade B, Level II b)

B - Patient education could be in the form of verbal explanations, written instructions, hands-on demonstrations and periodic reinforcements (Bowden et al, 1989). (Grade B, Level II b)

#### Disinfection of Trial Lenses

B - Clean and disinfect all trial lenses after each use (Bowden et al, 1989). (Grade B, Level II b)

B - Contact lenses should be properly cleaned with a surfactant cleaner and rinsed prior to storage (Vogt et al, 1986). (Grade B, Level II a)

B - Disinfection of all trial (soft and hard) lenses should be performed with a commercially available hydrogen peroxide contact lens disinfecting system currently approved for soft lenses (Martin, McDougal, & Loskoski, 1985; Spire et al, 1984; CDC, 1982; Centers for Disease Control and Prevention [CDC], 1983a; CDC, 1983b; CDC, 1985; CDC, 1984). (Grade B, Level II b)

B - Heat-disinfect lenses that can withstand heating e.g., certain soft and Polymethyl methacrylate (PMMA) lenses at 78 to 80 degrees Celsius for 10 minutes (Pepose et al, 1989; Busschaert, Good, & Szabocsik, 1978). (Grade B, Level II a)

B - After heat/hydrogen peroxide disinfection, contact lenses should be stored in chemical disinfecting solutions (Vogt et al, 1986). (Grade B, Level II a)

C - Certain rigid lenses can be stored dry after cleaning and soaking for a minimum of 10 minutes in hydrogen peroxide. (Grade C, Level IV)

#### Grades of Recommendation

Grade A (evidence levels Ia, Ib): Requires at least one randomized controlled trial as part of the body of literature of overall good quality and consistency addressing the specific recommendation.

Grade B (evidence levels IIa, IIb, III): Requires availability of well conducted clinical studies but no randomised clinical trials on the topic of recommendation.

Grade C (evidence level IV): Requires evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities. Indicates absence of directly applicable clinical studies of good quality.

Good Practice Points: Recommended best practice based on the clinical experience of the guideline development group.

#### Levels of Evidence

Level Ia: Evidence obtained from meta-analysis of randomised controlled trials.

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Level IIa: Evidence obtained from at least one well-designed controlled study without randomisation.

Level IIb: Evidence obtained from at least one other type of well-designed quasi-experimental study.

Level III: Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies.

Level IV: Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities.

#### CLINICAL ALGORITHM(S)

None provided

### EVIDENCE SUPPORTING THE RECOMMENDATIONS

#### REFERENCES SUPPORTING THE RECOMMENDATIONS

[References open in a new window](#)

#### TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

### BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

#### POTENTIAL BENEFITS

Although contact lens wear is generally safe and an effective way of correcting myopia, nevertheless, it can result in various complications. These complications arise due to various factors that are largely lens-related and patient-related. Serious complications can be prevented if detected and treated early.

Subgroups Most Likely to Benefit:

The annual incidence of microbial keratitis associated with contact lens wear varies with the type of lens worn (rigid gas permeable [RPG], soft, disposable, conventional, daily or extended wear). Among the different contact lenses, the relative risk of ulcerative keratitis is highest in extended lens wearers. Disposable lenses are also associated with microbial keratitis.

#### POTENTIAL HARMS

Not stated

### QUALIFYING STATEMENTS

#### QUALIFYING STATEMENTS

These guidelines are not intended to serve as a standard of medical care. Standards of medical care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge advances and patterns of care evolve.

The contents of the guideline document are guidelines to clinical practice, based on the best available evidence at the time of development. Adherence to these guidelines may not ensure a successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care. Each practitioner is ultimately responsible for the management of his/her unique patient in the light of the clinical data presented by the patient and the diagnostic and treatment options available.

## IMPLEMENTATION OF THE GUIDELINE

### DESCRIPTION OF IMPLEMENTATION STRATEGY

The audit parameters for contact lens care are as follows:

- Contact lens wearers should be reviewed by their eye care professional within 6 months of initial contact lens fitting.
- Unless there is an ocular pathology, visual acuity with contact lens on should be at least 6/12.

## INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

### IOM CARE NEED

Staying Healthy

### IOM DOMAIN

Effectiveness  
Patient-centeredness  
Safety

## IDENTIFYING INFORMATION AND AVAILABILITY

### BIBLIOGRAPHIC SOURCE(S)

Singapore Ministry of Health. Contact lens care. Singapore: Singapore Ministry of Health; 2001 Jan. 33 p. [60 references]

### ADAPTATION

Not applicable: The guideline was not adapted from another source.

### DATE RELEASED

2001 Jan

### GUIDELINE DEVELOPER(S)

National Committee on Ophthalmology (Singapore) - National Government Agency [Non-U.S.]  
National Medical Research Council (Singapore Ministry of Health) - National Government Agency [Non-U.S.]  
Singapore Ministry of Health - National Government Agency [Non-U.S.]

#### GUIDELINE DEVELOPER COMMENT

These guidelines were developed by an expert workgroup appointed by the Singapore National Committee on Ophthalmology.

#### SOURCE(S) OF FUNDING

Singapore Ministry of Health

#### GUIDELINE COMMITTEE

National Committee on Ophthalmology Workgroup on Contact Lens Care

#### COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Workgroup members: Dr. Lim Li (Chairperson); Dr. Khoo Chong Yew; Dr. Chan Wing Kwong; Dr. Donald Tan.

#### FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

#### GUIDELINE STATUS

This is the current release of the guideline.

An update is not in progress at this time.

#### GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [Singapore Ministry of Health Web site](#).

Print copies: Available from the Singapore Ministry of Health, College of Medicine Building, Mezzanine Floor 16 College Rd, Singapore 169854.

#### AVAILABILITY OF COMPANION DOCUMENTS

None available

#### PATIENT RESOURCES

None available

## NGC STATUS

This summary was completed by ECRI on October 25, 2001. The information was verified by the guideline developer on November 16, 2001.

## COPYRIGHT STATEMENT

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